Supporting Lifestyle Risk Reduction: Promoting Men's Health through Professional Football

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ABSTRACT:

Background: Unhealthy behaviours, including a poor diet, inactivity, smoking and excess alcohol represent major, modifiable causes of non-communicable disease worldwide. Health interventions delivered in professional football contexts offer an innovative way to overcoming the barriers that men experience around attempting to deploy more self-care. This study assessed the outcomes of a 12-week men's health promotion intervention delivered in and by professional football clubs.

Methods: The data set comprised self-reports from 1667 men aged 18-75 years from 16 English Premier League and Championship football clubs. Participants engaged in weekly exercise and lifestyle classes. A multinomial logistic regression model estimated the probability of self-reporting a number of baseline lifestyle risk factors compared to a reference group with none. Wilcoxon signed rank tests assessed pre vs. post intervention differences in lifestyle risk profiles.

Results: Over 85% of participants presented with multiple risk factors. Men aged ≥35 years were least likely to present all four risk factors (OR: 0.45, 95%CI: 0.23-0.88), whereas unemployed men (OR: 3.64, 95%CI: 1.78-7.51) and those with no social support network (OR: 5.10, 95%CI: 2.44-10.50) were most likely to self-report all four lifestyle risks. The prevalence of risk factors was significantly reduced post-intervention (z= -7.488, p<.001, r= -0.13), indicating a positive effect, and potential public health significance.

Conclusion: Groups with elevated odds of presenting simultaneous lifestyle risk factors included the unemployed, younger and socially excluded men. Findings show that men can respond positively to behaviourally-focused interventions delivered in familiar and local settings, like professional football clubs.

Key Words: men's health, lifestyle risk reductions, physical activity, football

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INTRODUCTION:

The insidious nature of men's ill health is cause for concern in the UK and the whole of the European Union with the growing spectre of avoidable premature death and chronic disease.[1] Moreover, orthodox channels for health promotion are routinely ineffective for helping some groups of men to sustain lifestyle change.[2] Worse, the scarcity of evidence-based programmes that meet their needs means there is little opportunity for the refinement of existing practice.[3] Therefore, poor engagement and high attrition continue to characterise health interventions aimed at younger men, especially those delivered in community settings.[4] The combination of inadequate provision and challenging socio-economic circumstance heighten the prevalence of many avoidable health conditions.[5] Consequently, there is an urgent need to identify successful, replicable and innovative approaches for improving the health of men.[6]

Professional football settings can be effective at engaging men who are reluctant to seek help through conventional services.[7] Men can be difficult to attract into health improvement programmes, plus they have a reputation for neither initiating, nor sustaining health modifying behaviour.[8] However, recent research investigating men's health in footballing contexts has shown positive effects for improving various cardiovascular markers and selected lifestyle behaviours. Men engaging exercise and diet programmes over a 10-week period demonstrated significant reductions in body weight, cholesterol and systolic blood pressure.[9] This weight loss was maintained over one year, well beyond the end of the programme. Further, in addition to well established physiological benefits, the social experience of exercising can have positive benefits for mental health, including, reducing depression,[10] social isolation and improving confidence.[11] These features often characterise groups of men considered harder-to-connect with, that need the connection all-the-more.

Gender-sensitive interventions can play an important role in men's health. In part, this is because men are less likely than women to develop the helping social relationships that positively impact physical and mental health.[12] Since socially supportive networks and relationships operate behaviourally,[13] sporting and leisure contexts provide an interesting avenue for connecting with men over health, and for constructing positive supportive links.[14] It is also clear that positive holistic health can be enhanced when interventions blend public health recommendations, provide increased social support, and help participants to form

strong and diverse natural social networks.[15] Improving these elements of social capital means that the prevalence of multiple lifestyle risk factors can also be reduced.[16] Leisure and sporting contexts have the potential to facilitate many of these attributes, therefore, overcoming determinants to engagement.

Unhealthy lifestyle behaviours including inactivity, poor diet, smoking, and excess alcohol consumption increase the risk for non-communicable disease. Individually and collectively they exact a huge toll on morbidity and mortality rates worldwide.[17] These four lifestyle risk factors are now emphasised by the UK National Health Service (NHS) in its Every Contact Counts policy,[18] and they underpin the 2020 impact goals for the US.[19] Although there has been a reported decline in the population displaying three or more lifestyle risk factors, this is mainly witnessed among those in higher socio-economic and educational groups.[20] The individual and combined prevalence of these risk factors confirms a non-random pattern of distribution across the population, especially among younger men, those in the lower social classes and with lower levels of education.[21] As a result, targeted health promotion interventions focusing on tangible short-term effects in at-risk groups are thought to be most effective.[22] Provisions within professional football clubs offer one possible way for overcoming many of the barriers that many men experience around attempting to deploy more self-care.

At present, there is a shortage of research investigating the prevalence and combinations of lifestyle risk factors in UK adults. Nevertheless, the available evidence serves to demonstrate the scale of the problem. Currently, it is estimated that around 60-70% of adult men present two or more of the big four lifestyle risk factors simultaneously.[23] However, eliminating these unhealthy behaviours could potentially reduce 74% of cardiovascular disease cases, 82% of coronary heart disease cases and 91% of diabetes cases.[24] Furthermore, the estimated benefit for those individuals who present zero compared to four lifestyle risk factors is equivalent to 14 years of extra life (when adjusted for gender, age, body mass index and socio-economic status).[25] With these thoughts in mind, this study aims to assess the most influential predictors of simultaneous lifestyle risk factors in men. It also aims to identify the outcomes of a 12-week health promotion intervention delivered in and by professional football clubs on reducing the prevalence of these risk factors.

METHOD:

The Intervention

'Premier League Health' (PLH) is a £1.63m three year programme of men's health promotion delivered in and by professional football clubs.[26] This investment helped 16 English Premier League and Championship football clubs to promote men's health. These clubs are iconic, their histories and reputations are respected locally, while stadia are familiar and located in densely populated community settings. Men aged ≥18 years were recruited from community settings, drug and prison rehabilitation services, unemployment agencies and areas of low socio-economic status. Substantial training was provided to delivery staff around the contemporary understanding of behaviour change. Subsequently, staff at each club developed and delivered a bespoke behavioural intervention focussed on the promotion of healthy lifestyles, based on the assessment of local needs. To achieve this end, project staff formed local steering groups that included local men, delivery agents and strategic partners involved in developing Joint Strategic Needs Assessments and Local Area Agreements.

PLH was delivered free of charge by community coaching staff, Health Trainers and allied health professionals employed by participating clubs. All interventions – as a minimum requirement – ran one PLH session each week lasting approximately 90 minutes. Each 90-minute session typically incorporated practical physical activity (commonly football, cricket, volleyball, badminton, cycling or circuit training), combined with *lifestyle advice* classes/seminars (advocating the benefits of a healthy lifestyle). Within this time frame, approximately one hour was set aside for 'doing' physical activity; and the remaining time was used to deliver *lifestyle advice*. The weighting and content of classroom and physical activity sessions changed over the intervention period. For example, in some interventions, as participants increased their fitness, the classroom element became shorter, focusing on reviewing earlier sessions to check understanding and self-monitoring individual goals. In other interventions, topics for classroom sessions and modes of activity altered in line with participant requests and requirements. Notwithstanding programme content, delivery across the clubs was underpinned by a strong sense of informality and a concern for engagement and enjoyment. Interventions took place between October 2009 and July 2012.

Study population

The data *corpus* comprised 4020 men. Data were excluded from the current analysis where (i) participants only engaged one-off match-day type events (n=1056), with no possibility of follow-up, or (ii) if there was missing data for any lifestyle risk factors at pre or post-intervention (n=1297). The resulting data set comprised 1667 (56%) men aged 18-75 years.

Data collection: demographics, lifestyle risk factors & covariates

Prior to data collection, ethical approval was obtained from the research ethics committee at Leeds Beckett University. Further, all procedures and instrumentation were piloted and refined prior to use.[27] Intervention staff collected pre-intervention measures at first point of contact, typically at pre-activity assessments and inductions along with informed consent. Data was then captured again at a 12-week follow-up. The structured questionnaire assessed socio-demographics (age, ethnicity, employment status) along with lifestyle risk factors (diet, activity, smoking and alcohol), and covariates (stress related health and social support).

Although objective measurement of these lifestyle risk factors is desirable in many circumstances, a number of self-report measures are valid, reliable, and often the most practical in real-world community evaluations.[28] Further, they can be sufficiently sensitive to detect change in behaviour.[29] Moreover, self-report remains an integral and accessible methodology for widespread public health surveillance. For example, the majority of data supporting a link between habitual physical activity and chronic disease stem from self-report.[30] Selecting the '*correct*' measurement tool/method is not simply about having the most accurate - objective - measure, but more about being aware of the underlying mechanisms that should guide selection. Even objective measures have their own set of limitations and sources of measurement error.[31] Nevertheless, self-report is often rebuked even when it is the most appropriate and logical method of data capture.

Four lifestyle risk factors were assessed in this study using valid and reliable measures. In line with current recommendations[32] and to assess physical activity, participants were asked how many days during the last week they accumulated ≥30 minutes of at least moderate

intensity physical activity.[33] Not meeting this criterion was classed as a lifestyle risk factor. Diet was assessed by summing all the portions of pulses, salads, vegetables, fruit juices and fresh, canned and dried fruit eaten on an 'average' day. Consumption of less than five daily portions was considered a lifestyle risk factor.[34] Alcohol risk was assessed using UK Health guidelines,[35] questions focussed on how many units of alcohol participants consumed weekly; consumption of ≥21 units weekly was considered excessive, therefore qualifying as a risk factor. Participants reporting the current use of tobacco were classed as smokers, and therefore possessed this risk factor.[36] To assess stress-related health, participants were asked,[37] 'In the last month, have you felt that you were under so much stress that your health was likely to suffer'? Responses were dichotomised in to (i) 'never' and (ii) 'yes'. Social support networks were assessed by asking participants 'Do you have people you can rely on in times of trouble'? Responses were dichotomised in to (i) 'never' and (ii) 'yes'.

Statistical analyses

Descriptive characteristics of the population are described for demographics and covariates. A multiple lifestyle risk factor index ranging from 0 (no risk factors) to 4 (all four risk factors) was developed, along with a dichotomised index of low risk (no, one and two risk factors) and high risk (three and four risk factors). For prevalence, the number and percentage of each individual lifestyle risk factor and each possible combination is reported.

Chi-square tests assessed demographic variations. A multinomial logistic regression model estimated the probability that – at recruitment - a participant had lifestyle risk factors compared to a reference group of '0'. Wilcoxon signed rank tests assessed differences in individual and total lifestyle risk factors, and between participants presenting high and low lifestyle risk from pre to post-intervention. Pearson's correlation coefficient effect sizes were calculated to standardize the measure of the effect observed ($r = z/\sqrt{N}$).[38] For all inferential tests, a p value of <.05 was taken to be statistically significant. Analyses were conducted using SPSS for windows version 19.0.

RESULTS:

Table 1 shows the baseline characteristics of participants; they were predominantly aged 18-34 years (51.6%, n=865), from a white British background (71.6%, n=1181) and in employment (57.6%, n=932). A significantly larger proportion of excluded participants were aged 18-34 years ($\chi^2[1]=30.23$, $p<.001$), from Black and minority ethnic backgrounds ($\chi^2[1]=7.02$, $p<.05$), and currently in employment (χ^2 [1]=13.52, $p<.001$).

Regarding adherence to health-enhancing behavioural recommendations at baseline, around 85% (n=1468) of the men under-exercised, 88% (n=1416) did not eat enough fruit and vegetables daily, 31% (n=522) smoked and 30% (n=495) drank excessively. Few (3%, n=47) presented no lifestyle risk factors, 11% (n=192) had one, and 42% (n=737) had two lifestyle risk factors. Over 32% (n=529) combined three lifestyle risk factors and around 10% (n=162) had all four. More than 55% (n=862) of the men reported that their health had suffered due to stress in the last month, and around 40% (n=624) reported not having social support networks to rely on in times of trouble.

Table 2 shows a multinomial multilevel logistic regression model, with the number of baseline lifestyle risk factors as the dependent variable. Men aged ≥35 years were 55% less likely to display all four risk factors (Odds Ratio [OR]: 0.45, 95% Confidence Interval [CI]: 0.23-0.88) compared to those aged 18-34 years, and the likelihood of presenting all four risk factors was reduced by 83% among men who thought that their health had not suffered in the last month due to stress (OR: 0.17, 95% CI: 0.08-0.36) compared to men reporting that it had. Unemployed men were three and a half times more likely to present multiple lifestyle risk factors compared to employed men (OR: 3.64, 95% CI: 1.78-7.51). Further, men who reported having no social support networks to rely on in times of trouble had the greatest odds for reporting all four lifestyle risk factors (OR: 5.10, 95% CI: 2.44-10.50). Assessments of post-intervention change indicated no significant differences in the profiles between those men that changed compared to those that did not, indicating equivalent responsiveness to the intervention.

Table 3 shows the prevalence of all 16 possible combinations of lifestyle risk factors at pre and post-intervention. At pre-intervention the four most common risk factor combinations included under exercising and poor diet (77%). This pattern remained at post-intervention (74%). The number of lifestyle risk factors reported significantly reduced from pre to post-intervention (z= -7.488, p<.001, r =-0.13). Further, there was a significant reduction in the number of participants (n=51) presenting a high lifestyle risk at post-intervention (z= -6.326 p<.001, r =-0.11).

Individually, at post-intervention there were statistically significant improvements in physical activity (z= -12.446 p<.001, r =-0.22), over 15% (n=254) of men increased their activity, while 2.9% (n=50) were now meeting current recommendations. Fruit and vegetable consumption also significantly improved (z= -11.652 p<.001, r =-0.20), more than 13% (n=222) of men increased their intake, 1.9% (n=33) went on to meet current recommendations. Alcohol intake was significantly reduced (z= -9.419 p<.001, r =-0.16), around 10% (n=170) reduced their weekly intake with over 2.7% (n=45) reducing it to meet current guidelines. Finally, the incidence of smoking was significantly reduced (z= -2.921 p<.001, r =-0.05), 1.4% (n= 23) of men stopped smoking.

DISCUSSION:

This study investigated the most influential predictors of simultaneous lifestyle risk factors in men, and identified the effects of a 12-week men's health promotion intervention delivered in and by English Premier League football clubs. To our knowledge, this is the first study of its type to investigate these issues with this group. Results highlight an elevated risk for multiple combinations of lifestyle risk factors at pre-intervention in those men who were unemployed, under stress, and with poor social support networks. This attests to effective recruitment. The 12-week intervention helped to positively alter individual, and combinations of the most potent risk factors for non-communicable disease in men typically viewed as being unresponsive to health-focused interventions, and hard-to-connect with.

Our finding that the strongest predictor of multiple concurrent lifestyle risk involves poor social support networks is important, and consistent with other data.[39] In their own right, pre-

existing social support and social networks established through sporting associations have the potential to minimise attrition and regression towards unhealthy practices.[40] PLH provided access to these networks for many of the recruits who were socially isolated when the programme began; we suggest that the association with football provided an approach that was also socially acceptable and desirable to participants. Further, the football context was comfortable, familiar, inclusive, and –as the intervention outcomes show - assisted men to overcome many barriers to better health. Therefore, health interventions aimed at marginalised groups should incorporate components designed to improve social support, and social networks.

At recruitment, unhealthy behaviours were common, which confirms effective targeting and recruitment. Physical inactivity and poor diet was the most prevalent combination among men presenting three and four lifestyle risk factors, suggesting a connection to non-adherence with tobacco and alcohol recommendations. Given that PLH was centred on physical activity, the reductions witnessed in other, seemingly unrelated risk factors, suggests that increased physical activity may have the potential to catalyse positive changes in other lifestyle behaviours. This is important for establishing which lifestyle behaviours are the most effective at eliciting change in other behaviours and therefore, which to target first. However, previous UK evidence[41] has also shown that the most active men are also more likely to smoke and over-consume alcohol. Therefore, the links between these behaviours - and their modification – needs to be assessed carefully.

Debates surrounding combinations vs. sequential methods of lifestyle behaviour change amplify the need to gauge the size of the effect in combination, as well as individually. Outcomes from PLH indicated a small, yet significant effect for reductions in combinations of lifestyle risk factors over 12-weeks. Previous studies involving men in football settings have also found significant reductions in risk factors over a similar time period,[42] but delivered to far fewer men than in PLH. This notwithstanding, the results are encouraging especially given the well documented difficulties that many practitioners experience when attempting to engage this group with health promotion.[43] Stronger research designs are needed to provide the evidence to consider health interventions in football – or indeed sporting contexts – as a major public breakthrough.

Regarding individual behaviours, the largest intervention effect was found for increased physical activity. Yet, only a small number of insufficiently active participants improved to meet current recommendations. The high baseline incidence of inactivity - over 50% of men undertook ≤2 sessions of physical activity per week at pre-intervention – and/or the dichotomised risk factor variables may account for this modest scale of effect. Therefore, accumulation of one or two additional sessions may be seen as an accomplishment for some men. For others, maintaining current activity - even if low – represents a considerable achievement within the intervention.

Unhealthy groups can find it particularly challenging to sustain behaviour change. The divergent patterns of lifestyle risk factors shown in the current study – at baseline and follow-up - provide challenges and opportunities for public health. Behaviour change is reinforced by tangible short-term effects, like feeling fitter, compared to longer term effects like reducing risk for non-communicable disease.[44] Consequently, interventions where the short-term benefits – including better physical performance – represent lifestyle change in their own right are more likely to be sustained, which contributes to their effectiveness. While this study shows that an initial intervention period can initiate change and stabilise problematic behaviours, establishing more permanent change is more challenging. The effectiveness of population based multiple behaviour interventions need to be established for both short-term change and longer-term maintenance of multiple acquired behaviours.[45]

Compared to men demonstrating no change, the current data show no significant differences in baseline profiles among men who improved their risk factor status. Pre-intervention, the majority of participants who achieved positive lifestyle change harboured poor social support networks and thought that their health had suffered due to stress pre-intervention. These were the most influential predictors of multiple lifestyle risk, yet in the current study they were not impediments to change. This highlights the capacity of sporting settings to tackle the key determinants of healthy lifestyles in those men with the most problematic health profiles and revises the notion of these men being resistant to change.

Outcomes from this study reflect a number of limitations, including the lack of a control condition, and the non-random selection of participants. Further, basing lifestyle risk factors on UK health recommendations may make it difficult to generalize the findings to different settings and populations. The data are also based on self-report which may be subject to participant bias and socially desirable responses, therefore, an unknown level of misclassification may have occurred. The common practice of dichotomizing health behaviour variables may have implications for the findings,[46] while the effects may have been attributable to factors other than the intervention. With these thoughts in mind, future studies should seek to assess outcomes from a longitudinal perspective using more rigorous experimental designs and objective measures of lifestyle risk factors where possible.

The most economically disadvantaged individuals and those with the lowest education often benefit least from health interventions, leading to widening inequalities and avoidable pressure on health services.[47] Achieved at a population level, even the modest scale of the positive improvements in combinations of lifestyle behaviours reported through this intervention, can have immense benefits for health services. Yet, unresolved, these issues increase the healthcare burden and the incidence of non-communicable disease in later life. This study found younger, unemployed men with poor social networks and higher levels of stress at an increased likelihood of presenting multiple lifestyle risk factors. Further, a 12-week health promotion intervention delivered in and by professional football clubs had a positive effect on reducing risk factors and improving lifestyles. These outcomes show that men are not universally resistant to lifestyle change, and they can respond positively to behaviourally-focused interventions if they are delivered in places and settings that are local and familiar, yet prestigious.

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COMPETING INTERESTS

None

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NOTES

[1] European Commission, *The State of Men's Health in Europe*
[2] Sinclair & Alexander, *Outreach to involve the hard-to-reach*
[3] Priest et al, *Interventions implemented through sporting organisations*
[4] White et al, *Engaging men in health interventions*
[5] Laaksonen et al, *Determinants of unhealthy lifestyle behaviours*, Pronk et al, *optimal lifestyles*, Shankar et al, *socioeconomic status and health*
[6] White et al, *innovative approaches for improving men's health*
[7] Pringle & Sayers, *Community based mental health with football*
[8] Turk et al, *Randomised trials of weight loss in men*
[9] Brady et al, *Men's health through football in Scotland*
[10] McGale et al, *Effectiveness of CBT for young men*
[11] Darongkamas et al, *Men's mental health, the effect of playing football*
[12] White et al, *Social relationships in men*
[13] Berkman et al, Social integration and health
[14] White et al, *Engaging men in health interventions*
[15] Cohen, *Social relationships and health*
[16] Holt-Lunstad et al, *Relationships and mortality*
[17] Poortinga, *Lifestyle risk factor clustering*, World Health Organisation, *Non-communicable disease*
[18] Department of Health, *NHS future forum*
[19] Ford et al, *Cardiovascular health and mortality*
[20] Buck & Frosini, *Unhealthy behaviour clustering*
[21] Chiolero et al, *Clustering of risk*, Poortinga, *Lifestyle risk factor clustering*, Schuit et al, *Lifestyle risk in adults*
[22] Jackson, *Behaviour change in health education*
[23] Poortinga, *Lifestyle risk factor clustering*, Schuit, *Prevalence of LRFs in adults*
[24] Bassuk, *Lifestyle and disease link*
[25] Khaw, *Health behaviours and mortality*
[26] Pringle et al, *Demographic and health profiles of men engaging PLH*
[27] South & Tilford, *Research and evaluation – influences on activity*
[28] Buck & Frosini, *Unhealthy behaviour clustering,* Chiolero et al, *Clustering of risk,* Dodd et al, *Lifestyle risk in students*, Fine et al, *Multiple chronic disease risk factors*, Poortinga, *Lifestyle risk factor clustering,* Pringle et al, *Cost effectiveness of community activity interventions*, Schuit et al, *Lifestyle risk in adults*
[29] Khaw et al, *Health behaviours and mortality in men and women*
[30] Haskell, *Physical Activity by self-report*
[31] Sternfeld & Goldman-Rosas, *Appropriate measures of self-report*
[32] Department of Health, *Start active stay active*
[33] Marcus & Forsyth, *Motivating people to become active*
[34] NICE, Assessment of overweight and obesity
[35] Department of Health, *Alcohol guidelines*
[36] Vaananen et al, *Smoking assessment*
[37] American Psychological Association, *Stress related health*
[38] Rosenthal, *Statistical procedures for social research*
[39] Holt-Lunstad et al, *Relationships and mortality*
[40] White et al, *Engaging men in health interventions*
[41] Poortinga, *Lifestyle risk factor clustering,* Schuit et al, *Lifestyle risk in adults*
[42] Brady et al, *Men's health through football in Scotland*
[43] Turk et al, Randomised trials of weight loss in men

[44] Jackson, Behaviour change in health education
[45] Berrigan et al, *Patterns of health behaviour*
[46] MacCallum et al, Dichotomizing quantitative variables
[47] Chiolero et al, *Clustering of risk,* Poortinga, *Lifestyle risk factor clustering*, Schuit et al, *Lifestyle risk in adults*

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